Remarks

Applicants respectfully request reconsideration of the present application in view of the following remarks. No claims have been amended or cancelled. Claims 17-20 have been added. Therefore, claims 1-20 are pending in the present application.

Claims 1-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,015,103 to Kotkowicz ("the Kotkowicz reference") in view of U.S. Patent No. 4,687,142 to Sasao et al. ("the Sasao reference") and U.S. Patent No. 5,080,287 to Takeda et al. ("the Takeda reference"). Applicants respectfully traverse this rejection.

In the Final Office Action, the Examiner states that the references of record provide the required motivation to combine the Takeda and Sasao references with the Kotkowicz reference. *See Final Office Action*, pg. 4. Applicants respectfully disagree with the Examiner's position.

With respect to the Kotkowicz reference, the Examiner acknowledged that it does not disclose the roughness of the injection ports. *See Final Office Action*, pg. 2. Thus, the Kotkowicz reference fails to provide the required motivation to combine its teachings with the Takeda and Sasao references.

The Takeda reference states that the prior art discloses that a portion of the valve member is brought to a surface roughness to 0.1 μm or less to eliminate catching of the residue at the fuel metering portion. *See* Col. 1, lines 60-66; *Final Office Action*, pg. 2. However, the Takeda reference goes on to state that it is very difficult to achieve a surface roughness of 0.1 μm or less, and provides an

alternative solution to prevent a reduction of fuel flow rate without the necessity of high precision machining. *See* Col. 2, lines 1-2, 5-10. As such, the Takeda reference teaches away from using a specific surface roughness to prevent a reduction of fuel flow rate in the Kotkowicz reference, and does not provide the necessary motivation to combine the Takeda reference with the Kotkowicz reference. *See In re Rudko*, Civ. App. No. 98-1505 (Fed. Cir. 1999) (unpublished).

With respect to the Sasao reference, the Examiner stated that it would have been obvious to one skilled in the art at the time the invention was made to have made the injection ports of the director plate in the Kotkowicz reference with a surface roughness of about 0.1 μm or less so as to be able to have a surface that is smooth whereby a high precision of fuel injection control becomes possible as taught by the Sasao reference. *See Final Office Action*, pg. 2. However, the Sasao reference is directed to honing a valve seat (10) and a fuel discharge port (11) for a valve seat-forming member (8). *See* Col. 2, lines 43-53. Since the Sasao reference primarily relates to the main valve body of a fuel injector, Applicants submit that it does not provide the necessary motivation to apply the teachings in the Sasao reference to a director plate as shown in the Kotkowicz reference.

Since there is no motivation to combine the Takeda and Sasao references with the Kotkowicz reference, Applicants submit that a prima facie case of obviousness has not been established. Thus, Applicants request that the rejection of claims 1-16 be withdrawn.

In response to the Applicants arguments submitted on December 22, 2004, the Examiner stated that one cannot show nonobviousness by attacking the

references individually where the rejections are based on combinations of references. *See Final Office Action*, pg. 4 citing *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). However, Applicants submit that the combination of the Kotkowicz, Takeda, and Sasao references do not teach or suggest a director plate having a numerical surface roughness of an exit surface adjacent to a passage exit of at least one passage is less than about (R_a) 0.2μm as recited in claims 1, 7 and 15. While the Kotkowicz reference may disclose a director plate, it does not disclose the surface roughness of its exit surface. *See Final Office Action*, pg. 2. The background portion of the Takeda reference mentions that the surface roughness of the metering portion of a valve member may be brought to 0.1 μm or less, but does not discuss the surface roughness of the exit surface of a valve member or a director valve. Further, as best seen in FIG. 2 of the Sasao reference, the Sasao reference discusses the honing of a valve seat (10) and a fuel discharge port (11) that are surfaces located within a valve seat-forming member (8). *See* Col. 2, lines 36-53. Nothing in the Sasao reference refers to honing an exit surface of the valve seat-forming member (8) or any type of director plate.

As such, even if the Kotkowicz, Takeda, and Sasao references are combined, which Applicants believe to be improper, nothing in their combined teachings discloses or suggests a director plate having a numerical surface roughness of an exit surface adjacent to a passage exit of at least one passage is less than about (R_a) 0.2μm as recited in claims 1, 7 and 15.

For this additional reason, Applicants request that the rejection of claims 1, 7 and 15 be withdrawn. As claims 2-6, 8-10 and 16 depend either directly or indirectly

from claims 1, 7 and 15, respectively, these claims are also not taught or suggested by the references of record for at least the same reasons set forth with respect to claim 1. Applicants request that the rejection of claims 2-6, 8-10 and 16 be withdrawn for this additional reason.

New claim 17 is directed to a method of forming a director plate for a fuel injector. The method includes providing a director plate having a fuel inlet surface and a fuel exit surface, stamping a passageway through the director plate between the fuel inlet surface and fuel exit surface, said passageway having an fuel inlet and a fuel exit, wherein a break-edge is formed on the fuel exit surface, and smoothing the fuel exit surface to a surface roughness of less than about (R_a) 0.2μm. Claims 18-20 include additional limitations of the method in claim 17.

Conclusion

In light of the foregoing, Applicants submit that claims 1-20 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

The Commissioner is hereby authorized to charge the $200.00 fee for the additional independent claim in excess of three, and any other fee that may have been overlooked, to Deposit Account No. 10-0223.

Respectfully submitted,

Dated: 5/16/05

Dennis B. Danella
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Conclusion

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